

WHAT IS CLAIMED IS:

1. An isolated polypeptide having an amino acid sequence selected from the group consisting of;
5 (a) an amino acid sequence of SEQ. ID. NO. 2, and
 (b) an amino acid sequence having at least 70% identity to SEQ. ID. NO. 2.
2. The polypeptide of claim 1, wherein the polypeptide (having the amino acid sequence of SEQ. ID. NO. 2) contains aminotransferase class I and II domain at
10 C-terminal.
3. An isolated polynucleotide encoding the polypeptide of claim 1.
4. The polynucleotide of claim 3, wherein the polynucleotide comprises a nucleotide
15 sequence of SEQ. ID. NO. 1.
5. An expression vector comprising the polynucleotide of claim 3.
6. The expression vector of claim 5, wherein the expression vector comprises the
20 polynucleotide having a nucleotide sequence of SEQ. ID. NO. 1.
7. A cell comprising the expression vector of claim 5.
8. A transgenic plant comprising the expression vector of claim 5.
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9. A seed comprising the expression vector of claim 5.
10. An antisense polynucleotide complementary to the polynucleotide of claim 3.
- 5 11. The antisense polynucleotide of claim 10, wherein the antisense polynucleotide is complementary to the polynucleotide having a nucleotide sequence of SEQ. ID. NO. 1.
12. An expression vector comprising the antisense polynucleotide of claim 10.
- 10 13. The expression vector of claim 12, wherein the expression vector comprises the antisense polynucleotide of claim 11.
14. A cell comprising the expression vector of claim 12.
- 15 15. A transgenic plant comprising the expression vector of claim 12.
16. A seed comprising the expression vector of claim 12.
- 20 17. A method for inducing plant growth inhibition by suppressing the expression or function of the polypeptide of claim 1, resulting in inhibition of biotin biosynthesis.
- 25 18. The method of claim 17, wherein the suppression of the expression of the polypeptide is achieved by any method selected from the group consisting of introduction of the antisense polynucleotide of claim 10, gene deletion, gene

insertion, T-DNA introduction, homologous recombination and transposon tagging.

19. A method for identifying herbicidal compounds that inhibit the expression or
5 function of the polypeptide of claim 1, comprising the steps of;

(a) combining a polypeptide of claim 1 with the compounds to be tested for the ability to inhibit the expression or the function of the polypeptide under conditions conducive to inhibition;

(b) selecting the identified compounds to inhibit the expression or function
10 of the polypeptide in step (a);

(c) applying the said compounds selected in step (b) to a plant to test for herbicidal activity; and

(d) selecting the identified compounds to have herbicidal activity in step (c).

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